DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Agency for Toxic Substances
and Disease Registry

Memorandum

Date July 9, 1991

From Environmental Health Scientist, TSS, ERCB, DHAC (E32)

Subject Health Consultation: Harco Property
Welton, Fairfield County, Connecticut

To Louise House
ATSDR Regional Representative
U.S. EPA Region 1
Through: Director, DHAC (E32)
Acting Chief, ERCB, DHAC (E32)
Chief, TSS, ERCB, DHAC (E32)

BACKGROUND AND STATEMENT OF ISSUES

The U.S. Environmental Protection Agency (EPA) has requested that the Agency for Toxic Substances and Disease Registry (ATSDR) comment on the likelihood of adverse health effects from the contamination present at the Harco Property. The Harco Property was formerly used as dump for iron oxide, lime, calcium sulfate, and other waste.

The property is a clearing of about 1.7 acres. The north and east sections are covered by shrubs and bushes. Much of the rest of the site is covered with short grass. Standing water is present in some areas, and a stream flows along the northwest corner of the property. A dirt road runs through the site, and access is not restricted.

It is possible that waste is still being disposed of at the site, but the EPA has indicated that the area looks undisturbed. One crushed waste drum has been found. The current owner has expressed a desire to develop the property.

There are about 50 residences within a quarter mile of the site. One house sits on the access road at the edge of the property. All of the residences are on private wells.

Five on-site soil samples were tested for metals, volatile organic compounds (VOCs), pesticides, and base-neutral extractables/acid extractables (BNAs). The only contaminant found at a level of concern was lead. Four of the samples had lead concentrations over 1,000 parts per million (ppm). Soil samples taken from the dirt road had the highest lead concentrations: one of 84,500 parts per million (ppm) and another of 8,520 ppm. The depths of the soil samples were not specified.

Ground water, surface water, and the waste drum have also been sampled for inorganics, VOCs, pesticides, and BNAs. The ATSDR does not know if any contaminants were found in the ground water, but the EPA reports that 32 residential wells near this property and a nearby landfill were tested and that no contaminants attributable to the Harco site were detected. Stream water samples detected lead as high as 0.181 ppm, and nickel as high as 0.24 ppm, but the ATSDR does not know the uses of the water. The waste drum contained organic compounds, including xylene at 3,400 ppm, and metals, including lead at 1,290 ppm.

INFORMATION AND DOCUMENTS REVIEWED

1. Agency for Toxic Substances and Disease Registry. May 24, 1991. Facsimile transmitted from Louise House to Dave Barry, ATSDR.

2. Goffi, Elio. October 31, 1990. Memorandum: Harco Property, to Mary Ellen Stanton, EPA.

3. EPA Region I. September 24, 1990. Removal Preliminary Assessment form.

4. EPA Region I. September 25, 1990. Removal Site Investigation form.

5. Agency for Toxic Substances and Disease Registry. 1990. Toxicological Profile for Lead. ATSDR, Atlanta, Georgia.

DISCUSSION

Although the site has not been completely characterized, the levels of VOCs, pesticides, and BNAs in the soils and surface water do not seem to represent a public health threat. The property is fairly remote, and long-term human exposure seems unlikely. Moreover, these contaminants are not reported at levels likely to be of a health concern if they were to migrate from the site.

The levels of lead in soils are elevated. Lead concentrations of 80,000 ppm definitely represent a threat to public health if persons, especially children, are repeatedly exposed for even relatively short periods of time. If a 16 kilogram child were to consume only 10 milligrams of soil at these concentrations, the child, absorbing only 50% of the lead, would be exposed to an absorbed dose of over 0.02 milligrams of lead per kilogram of body weight per day (mg/kg/day). A dose of 0.02 mg/kg/day over three days has been associated with reductions in erythrocyte ALA-D production in adults. Since children are generally more

sensitive to lead than adults, repeated child exposures of 0.02 mg/kg/day may result in growth and hearing impairment and reductions in intelligence quotient (IQ).

Lead has been found in high concentrations on the dirt road where it may be easily disturbed by cars, bicycles, or all terrain vehicles. The ATSDR does not know if children are playing on site or if persons are repeatedly on site for other reasons. The ATSDR is also concerned that, because of the high concentrations, lead may migrate or be carried off site and into nearby residential areas.

Lead and nickel in stream water may also be of some concern if the stream water is routinely ingested. The ATSDR does not know if persons are using the stream water for potable purposes. The reported concentration of lead is above the EPA proposed maximum contaminant level (MCL) of 0.005 ppm for drinking water. The nickel concentration is above the EPA proposed MCL of 0.100 ppm.

CONCLUSIONS

Based on the data available, the ATSDR concludes the following:

1. contamination at the Harco property has not been fully characterized;

2. the soil lead concentrations on site represent a threat to public health if persons, especially children, ingest even small amounts of soil;

3. soil lead concentrations on site are high enough to warrant concern over the migration of lead from the site and into nearby residential areas or areas where human contact is more likely;

4. because of the low concentrations of the other contaminants and because the site seems isolated and undisturbed, the other contaminants in the soil do not seem to pose a threat to public health; and

5. lead and nickel contamination in the stream exists at levels above proposed MCLs for drinking water.

RECOMMENDATIONS

1. Characterize the contamination at the site.

2. Consider administrative controls on the land use of the property until the contamination can be characterized and abated.

3. Restrict access to the site to prevent contact with drums and lead contaminated soil.

4. Minimize the possibility of lead migration from the site.

5. Ensure that the stream water is not used for potable purposes.

If further clarification is required or if additional information becomes available for review, please do not hesitate to contact this office at (404) 639-0616.

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